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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/645,132

08/21/2003

Fred P. Reinhard

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP  
1279 OAKMEAD PARKWAY  
SUNNYVALE, CA 94085-4040

EXAMINER

WILKINS III, HARRY D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

06/16/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/645,132	<b>Applicant(s)</b> REINHARD, FRED P.	
	<b>Examiner</b> Harry D. Wilkins, III	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2009 and 26 April 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
     4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of Species "a." (claims 1-13) in the reply filed on 26 April 2010 is acknowledged.
2. Claims 14-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 26 April 2010.

### ***Rejection Status***

3. The rejection of claims 1-13 based on Inoi et al are withdrawn in view of the clarification of the elected species and the fact that the electrodes of Inoi et al are not arranged as screen electrodes as is required by this species.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

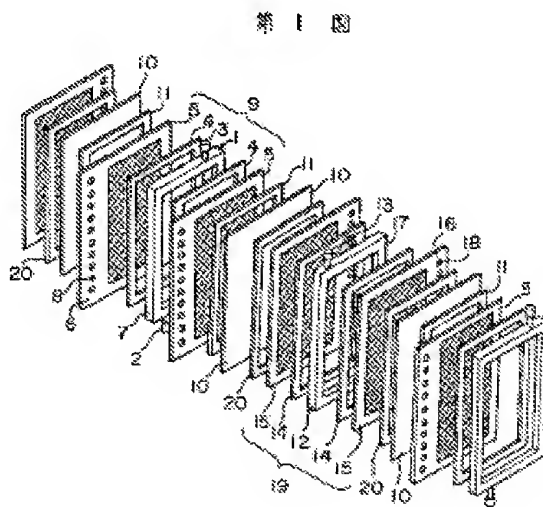
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 6-9 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Yoshida (JP 59-64786).

Yoshida anticipate the invention as claimed. Yoshida teaches (see figure 1 and English abstract) an electrolytic cell including a first cell frame (17) and a second cell frame (1) including an in-flow port (2) and an out-flow port (3) located along the outer perimeter of the second cell frame, the out-flow port above the in-flow port, a

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compartment formed between the first cell frame and the second cell frame, the compartment housing a self-supporting screen anode electrode (5), a self-supporting screen cathode electrode (15) and a membrane (10) positioned between the two electrodes, and a screen spacer (gasket 11) interposed as an interface between the screen anode electrode and the membrane or a screen spacer (gasket 20) interposed as an interface between the screen cathode electrode and the membrane. The gasket would inherently provide the function of establishing a set distance between the electrode and the membrane.



Regarding the recitation of “for purification of an in-flow solution”, the limitation relates to the intended use of the claimed apparatus, and thus fails to further limit the structural features of the claim.

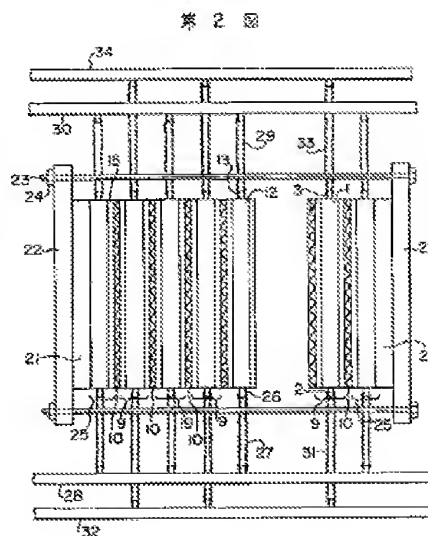
Regarding claim 2, Yoshida teach including a screen spacer (gasket) on both sides of the membrane.

Regarding claim 3, the anode (5) of Yoshida is configured as a self-supporting screen including at least one connector for attachment to a bus bar.

Regarding claim 4, the cathode (15) of Yoshida is also configured as a self-supporting screen with at least one connector protruding for connection to a bus bar.

Regarding claims 6 and 7, these claims relate to the manner in which the claimed apparatus operates. The manner in which an apparatus is not given patentable weight as long as the apparatus was capable of operating in the claimed fashion. See MPEP 2114. The device of Yoshida et al would have been capable of operating in the claimed fashion. Thus, Yoshida et al teach the structure of the apparatus as claimed.

Regarding claim 8, Yoshida et al teach (see figure 2) that assembly of the electrolytic cell included a first clamping frame (22) and a second clamping frame (also 22) with the cell frames located between them, a plurality of fastening rods (23) inserted through apertures of the clamping frames and a plurality of fastening components (nuts) each positioned on a corresponding end of one of the rods.



Regarding claim 9, the fastening components (nuts) were threaded onto a corresponding end of the rods.

Regarding claim 11, the first cell frame (17) of Yoshida et al included in-flow (26 in figure 2) and out-flow (13) ports as claimed.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (JP 59-064786) with evidence from "Newest News About Brown's Gas".

The teachings of Yoshida et al are described above.

Yoshida et al do not teach a sidewall or endwall of the second cell frame being transparent or translucent.

One of ordinary skill in the art would have found it obvious to have made any of the sidewall and endwall of a cell frame or a clamping frame to be transparent in order that the indicators of a reaction (such as formation of gas bubbles) might be viewed by the operator.

Evidence that such modification was known to one of ordinary skill in the art of electrolyzers can be seen in "Newest News About Brown's Gas". On the first page is described and pictured, an electrolyzer made from a transparent housing so that

internal formation of bubbles could be visually detected while the electrolyzer was being operated. Thus, the Examiner has shown that it was well within the knowledge of one of ordinary skill in the art to make portions of an electrolyzer transparent for the purpose of allowing visual inspection of reaction progression, particularly for noticing the formation of gas bubbles.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al (JP 59-064786) in view of Tejeda (US 3,869,376).

The teachings of Yoshida et al are described above.

Yoshida et al fail to teach including two membranes separated by a non-conductive frame as claimed.

Tejeda teach (see figure 1) an alternative electrolytic cell arrangement that has three chambers, where an anode chamber is separated from a center chamber by an ion-exchange membrane, and the center chamber is separated from the cathode chamber by an additional ion-exchange membrane. Tejeda further teach that the membranes are held in place between the chambers by means of gaskets (see col. 7, lines 45-59).

Therefore, it would have been obvious to one of ordinary skill in the art to have adapted the electrolytic cell of Tejeda to be used with the modular electrolytic cell design of Yoshida et al by constructing cell frames as shown by Yoshida et al, and inserting an additional membrane (10) between adjacent anode (5) and cathode (15) with a non-conductive frame (20 of Tejeda) separating the two membranes, and to have included spacers (gaskets) between each of the membranes and the non-conductive

frame to permit the three-chambered arrangement of Tejeda to be establish in the electrolytic cell of Yoshida et al which had the capability of being easily expanded or reduced in size as needed.

### ***Response to Arguments***

9. Applicant's arguments filed 22 December 2009 have been fully considered but they are not persuasive. Applicant has argued that Yoshida et al fails to teach the in-flow port and out-flow port as required by claim 1.

In response, it can be seen from figures 1 and 2 of Yoshida et al that the supply nozzle (2) (in-flow port) and the discharge nozzle (3) (out-flow port) are arranged on the outer periphery of the anode chamber frame (1) (second frame).

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of



the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/  
Primary Examiner, Art Unit 1795

hdw